File: NPDES, Map & Kennecott-Humboldt Mill

Ringuette, Lindsey (DNRE)

10-25-10
- Sec. 4.0 (pg. 5) revised
Approved LR

From: Mariuzza, Kristen (TI) [Kristen.Mariuzza@riotinto.com]
Sent: Monday, October 25, 2010 9:21 AM
To: Ringuette, Lindsey (DNRE)
Cc: Morissette, Mary (KEMC)
Subject: SWMP
Attachments: KENNECOTT SWMP Oct 2010.pdf

Lindsey,

Please find attached a revised Storm Water Monitoring Plan to replace the one submitted on October 22nd. Section 4.0 on page 5 was modified to reflect the sampling frequency for this monitoring effort. If you have any questions, please do not hesitate to contact me. Thanks.

Kristen

Kristen Mariuzza, P.E.
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STORM WATER MONITORING PLAN

for the

Humboldt Mill Property
4547 County Road 601
Champion, Michigan

Prepared for:

Kennecott Eagle Minerals Company
504 Spruce Street
Ishpeming, Michigan 49849

Prepared by:

Horizon Environmental Corporation
4771 – 50th Street, SE, Suite One
Grand Rapids, Michigan 49512

August 2010

(Revised October, 2010)

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FIGURES

TABLES

1.0 PURPOSE

The purpose of this Storm Water Monitoring Plan ("Plan") is to present a plan for determination of the quality of storm water being discharged from the Kennecott Eagle Minerals Company ("KEMC") Humboldt Mill located at 4547 County Road 601, in Champion, Michigan. This Plan has been prepared as a condition of the Humboldt Mill's National Pollutant Discharge Elimination System ("NPDES") Permit (Permit No. MI0058649) which authorizes process wastewater and storm water discharge from the Humboldt Mill property to a wetland contiguous to the Middle Branch of the Escanaba River.

2.0 BACKGROUND

2.1 PROPERTY LOCATION AND OWNERSHIP

The Humboldt Mill property is located in Sections 2 and 11 in Township 47 North, Range 29 West, Humboldt Township, Marquette County, Michigan. A site location map is presented as Figure 1. The Humboldt Mill property is presently owned by three separate entities. Kennecott Eagle Land, LLC ("KEL"), an affiliated company of KEMC, owns approximately 27 acres of the site, including the buildings associated with the former Humboldt Mill. Callahan Mining Corporation ("Callahan") owns the adjacent HTDF and surrounding lands (approximately 188 acres), and O'Dovero Properties owns the remainder of the property where mill operations are planned.

2.2 PROPERTY HISTORY

The Humboldt Mill facility was originally constructed in 1954 to concentrate low grade iron ore from the adjacent Humboldt Mine (now referred to as the HTDF). The Humboldt Mill facility incorporated crushing, grinding, and flotation process unit operations to concentrate iron ore. The mill was operated to process iron ore until approximately 1970. At that time the Humboldt Mine was closed and the mill was converted to a hematite concentrate regrind with upgrading circuits using two ball mills and an elutriation process. An associated pellet facility continued to operate until approximately 1979, processing hematite concentrate and excess concentrate from the nearby Republic Mine.

In the early 1980's, Callahan developed the Ropes Gold Mine approximately 10 miles east of the Humboldt Mill site. Callahan purchased parts of the Humboldt Mill facility, with the exception of the pelletizing process. The mill was converted to facilitate gold ore processing and restarted in July 1985, processing ore at a rate of up to 2,000 tons per day. The mill operated until 1989, when the Ropes Mine was closed. During the processing of the Ropes ore, tailings derived from ore processing containing sulfide minerals were placed in the HTDF (the previously mined pit area).

Minerals Processing Corporation ("MPC") purchased the Humboldt Mill from Callahan in the mid 1990's to provide custom milling services under contract from producers. MPC intermittently operated some sections of the mill for custom grind contracts.

2.3 ANTICIPATED PROPERTY REDEVELOPMENT

KEL purchased the mill buildings and associated property in September 2008. KEMC proposes to use the Humboldt Mill property, as well as the adjacent Callahan and O'Dovero properties, to accomplish beneficiation of base metal ores mined off-site. Copper and nickel concentrates produced at the property will be transported from the site to another location for further processing (i.e., smelting). Tailings derived from the beneficiation operation will be managed through discharge to the HTDF for subaqueous disposal.

2.4 ENVIRONMENTAL CONDITIONS AND PERMIT REQUIREMENTS

As a result of historical operations on the property, the property is a "facility" as defined under Part 201 of Michigan's Natural Resource and Environmental Protection Act ("NREPA" or 1994 Michigan P.A. 451, as amended). Residuals from historic mill operations are present on the ground surface at the site and are expected to contact storm water, which is discharged from the mill areas via storm water drainage ditches.

Part I.A.3 of KEMC's NPDES permit requires preparation of this Storm Water Monitoring Plan for activities or areas (including Sites of Environmental Contamination) which may impact storm water and for which the Michigan Department of Natural Resources and Environment (MDNRE or "Department") determines monitoring is required.

This Plan has been prepared to be consistent with the *Short-term Characterization Study of Storm Water Discharges* guidance provided by the MDNRE. Prior to operations at the Humboldt Mill and pursuant to the intent of the May 29, 2009 correspondence from KEMC to the MDNRE, KEMC will combine the storm water monitoring requirements of the NPDES permit with the surface water monitoring requirements under the Part 632 permit to create one comprehensive storm water and surface water monitoring plan. While the Humboldt Mill remains in its current, non-operational state, the storm water monitoring conditions as outlined in this Plan will be applied. These conditions include storm water sampling methods, sampling locations, sampling frequency, and analytical methods for samples.

3.0 SCOPE OF STORM WATER MONITORING

Storm water sampling to be completed at the site will consist of collection of samples at specified outfalls on an established frequency, and analysis of these samples for constituents that are known to be present or could reasonably be present in the drainage areas. The storm water sample locations are illustrated on Figure 2, and the sampling parameters are summarized on Table 1.

3.1 SAMPLE LOCATIONS

Storm water samples will be collected from the outfalls of three storm water culverts that currently discharge, or will discharge, storm water from the mill property. Samples will also be

collected from the outfall from the HTDF (sampling location HMP-009, designated Outfall 001 in the NPDES Permit). The sample locations (illustrated on Figure 2) are as follows:

- HMWQ-001 (Under County Road 601 near railroad grade);
- HMWQ-004 (Under County Road 601 at mill entrance);
- HMWQ-005 (South of former pellet plant location); and
- HMP-009 (HTDF outfall; Outfall 001).

To the extent that the outfalls outlined above have not yet been constructed, storm water samples will be collected from existing storm water conveyances at locations proximate to the proposed outfalls, until such time as outfall construction has been completed.

3.2 SAMPLE FREQUENCY

Samples will be collected during periods of storm water runoff as specified in the Humboldt Mill NPDES Permit. Table 1 includes a parameter list identifying both quarterly and annual sampling. However, for this SWMP, all the parameters listed will be sampled at each sampling event in order to adequately characterize the storm water that discharges from the site. In addition, per the May 29, 2009 correspondence discussed previously, a minimum of one sample of storm water derived from spring snow melt will also be collected and analyzed for all parameters listed in Table 1, which includes volatile organic compounds ("VOCs"), polynuclear aromatic hydrocarbons ("PAHs"), and cyanide. Parameters indicated in Table 1 that are to be assessed using field methods will be collected as grab samples during the first thirty minutes of the discharge.

Samples will be collected during a storm event that results in greater than 0.1 inch of rainfall, causes a discharge, and is at least 72 hours from the previous measurable (i.e., greater than 0.1 inch) storm event. A minimum of three sampling events will be performed for this characterization.

3.3 SAMPLE COLLECTION

KEMC personnel or their designee will monitor weather conditions for appropriate sampling opportunities and determine timing of the sampling events. When weather conditions are favorable for an acceptable rain event (i.e., at least 72 hours of dry weather preceding a rain event predicted to exceed 0.1 inches of accumulation), the sampling staff will be on "stand-by" in anticipation of a sampling event. The sampling staff will document that weather conditions meet the established criteria.

As specified in the NPDES permit, grab samples will be collected within the first thirty minutes of the initial discharge from the storm water conveyance (and not thirty minutes from the start of the rain event). Samples will be collected in appropriate sample containers required by the EPA analytical methods specified in Table 1 (e.g., no-head space vials for VOCs), placed in a sample cooler with ice, and transported to the laboratory under proper chain-of-custody procedures.

Additional samples may be collected at different intervals during a rain event to provide a better representation of storm water quality discharged from the site. If KEMC elects to collect additional samples, the results of all samples collected will be reported to the MDNRE.

All relevant conditions associated with a successful sampling event must be recorded and included with the storm water monitoring report. Conditions to be recorded include date and duration of the storm event, rainfall measurement or estimate, duration between the storm event sampled and the end date of the previous measurable (i.e., 0.1 inch) storm event, visual observations and an estimated total volume of storm water discharge.

To reduce the potential for sampling problems due to adverse weather conditions (e.g., freezing), false starts, and intermittent rain events, storm water sampling should not be attempted during freezing conditions or rain events that are not expected to exceed 0.1 inch total accumulation. Storm water sampling should not be attempted during thunderstorms when lighting is present in the area. Sampling equipment should include proper lighting to allow for the safe collection of samples during night conditions.

3.4 SAMPLE ANALYSIS

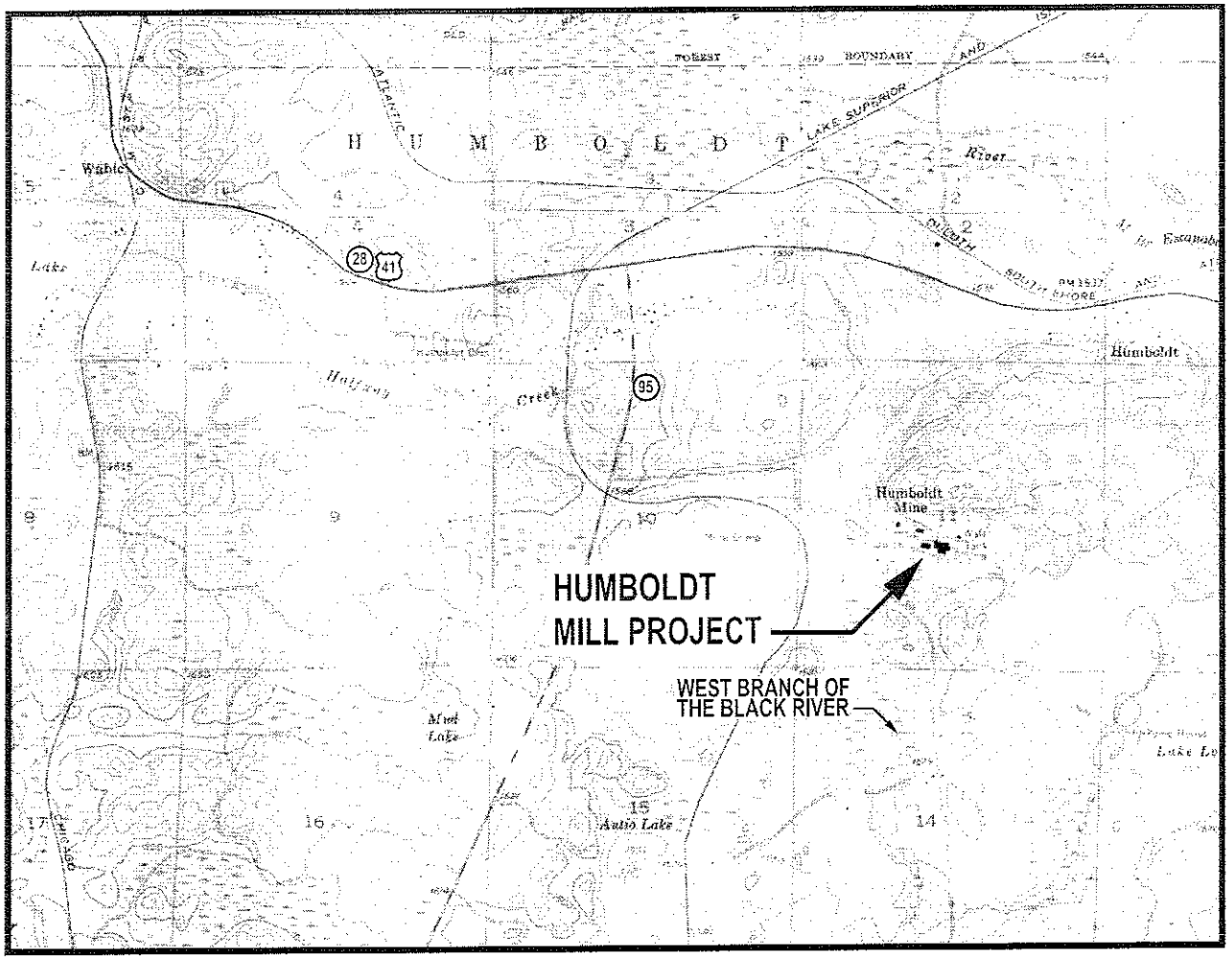
The storm water samples will be analyzed by TriMatrix Laboratories (see Figure 3 for relevant qualifications) for the constituents and parameters identified on Table 1. Table 1 also specifies the applicable analytical methods and method reporting limits.

4.0 REPORTING

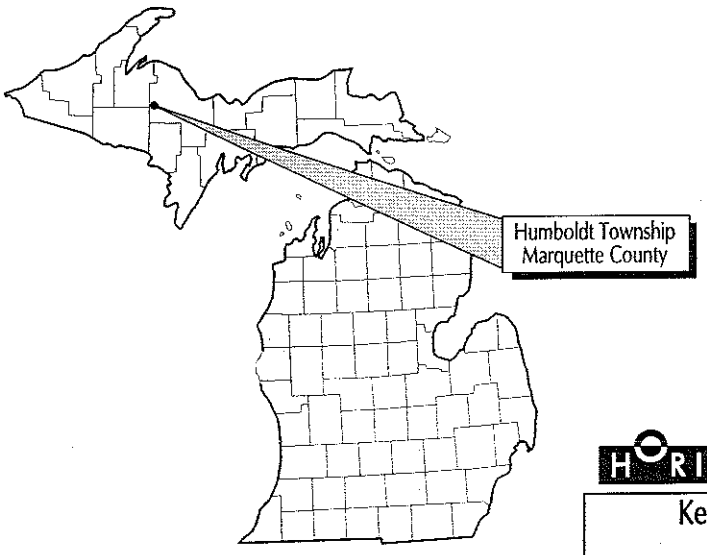
Within sixty (60) days following collection of the storm water samples, a report of the storm water sampling event will be prepared and submitted to:

District Supervisor, Water Bureau
MDNRE Upper Peninsula District Office
K.I. Sawyer International Airport and Business Center
420 Fifth Street
Gwinn, Michigan 49841

The storm water sample report will include sample collection date, tabulated analytical results, and supporting laboratory data (including entire laboratory report with any notations and data qualifications). The report will include all pertinent information regarding the storm event, including date and duration of the storm event, rainfall measurement or estimate, duration between the storm event sampled and the end of the previous measurable storm event, visual observations and an estimate of the total volume of storm water discharge.



TAKEN FROM 7.5 MINUTE SERIES TOPOGRAPHIC MAP
REPUBLIC AND CHAMPION QUADRANGLES
SCALE: 1" = 3000'



North

0 1500 3000 6000

SCALE IN FEET

HORIZON ENVIRONMENTAL

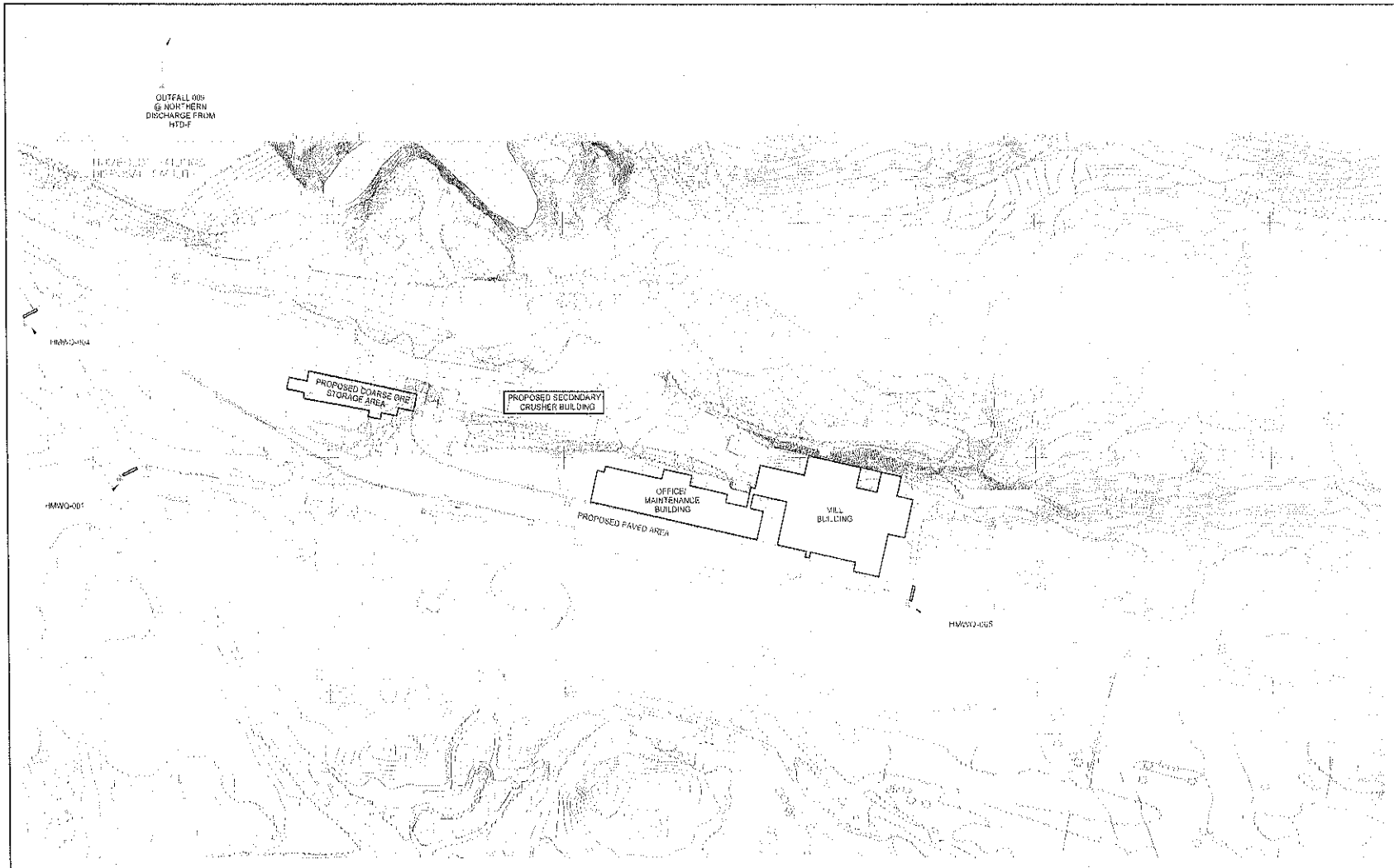
Kennecott Eagle Minerals Company
Marquette County, Michigan

SITE LOCATION MAP

PROJECT NUMBER:
KEX-0104

FIGURE:
1

AUGUST 2010



HORIZON ENVIRONMENTAL

KENNECOTT EAGLE MINERALS CO., HUMBOLDT MILL PROJECT
HUMBOLDT TOWNSHIP, MARQUETTE COUNTY, MICHIGAN

SITE PLAN WITH STORM WATER SAMPLING LOCATIONS

PROJECT NUMBER
KEX-0104

SCALE
1" = 100'

FIGURE
2

Laboratory Certification Programs

Federal Certifications/Approvals

Certifying Agency	Certification Type	Program Type/Guidelines
A2LA	Department of Defense - DoD ELAP	AFCEE, Navy, USACE QSM ver. 4.1 / AFCEE QAPP ver. 4.02

State Certifications

State	Certifying Agency	Certification Type	Lab or Certification Number
	Accredited DoD ELAP Laboratory	A2LA	675.01
Arkansas	Department of Environmental Quality	CWA, RCRA	07-059-0
Florida	Department of Health	CWA, RCRA, SDWA Primary NELAP	E87622-05
Georgia	Environmental Protection Division	CWA, RCRA Reciprocal NELAP	None
Illinois	Environmental Protection Agency	CWA, RCRA, SDWA Reciprocal NELAP	001476
Kansas	Department of Health and Environment	CWA, RCRA Reciprocal NELAP	E-10302
Kentucky	PSTEAF/UST	RCRA Reciprocal	0021
Louisiana	Department of Environmental Quality	CWA, RCRA Reciprocal NELAP	03068
Michigan	Department of Environmental Quality	SDWA	0034
Minnesota	Department of Health	CWA, RCRA/UST	10380AA
New York	Department of Health	CWA, RCRA Reciprocal NELAP	11776
North Carolina	Department of Environment and Natural Resources	CWA, Reciprocal NELAP	659
Rhode Island	Department of Health	CWA, SDWA	Pending
Wisconsin	Department of Natural Resources	CWA, RCRA	999472650

Independent Certifications

Certifying Agency	Certification Type	Lab or Certificate Number
A2LA	Environmental Testing – Potable Water, Non-Potable Water, Solid Waste ISO/IEC 17025:2005	0675.01

Table 1
Kennecott Eagle Minerals Company
Humboldt Mill, Champion, Michigan
Storm Water Monitoring Plan
Analyte / Parameter List

Parameter	Frequency	Analytical Method	Method Reporting Limit	Units
Field				
Temperature	Quarterly	Field	NA	^{0}C
Dissolved oxygen (DO)	Quarterly	Field	NA	mg/L
Specific Conductance	Quarterly	Field	NA	umhos/cm
pH	Quarterly	Field	NA	S.U.
Turbidity	Quarterly	Field	NA	NTU
Flow	Quarterly	Field	NA	cfs
Metals				
Aluminum	Annually	EPA-200.7/6020	50	ug/L
Antimony	Annually	EPA-200.8/6020	2.0	ug/L
Arsenic	Quarterly	EPA-200.8/6020	1.0	ug/L
Barium	Annually	EPA-200.8/6020	10	ug/L
Beryllium	Annually	EPA-200.8/6020	1.0	ug/L
Boron	Annually	EPA-200.8/6020	50	ug/L
Cadmium	Annually	EPA-200.8/6020	0.40	ug/L
Chromium	Annually	EPA-200.8/6020	1.0	ug/L
Cobalt	Annually	EPA-200.8/6020	10	ug/L
Copper	Quarterly	EPA-200.8/6020	2.0	ug/L
Iron	Quarterly	EPA-200.7/6020	40	ug/L
Lead	Quarterly	EPA-200.8/6020	1.0	ug/L
Lithium	Annually	EPA-200.7/6020	10	ug/L
Manganese	Quarterly	EPA-200.8/6020	10	ug/L
Mercury	Quarterly	EPA-1631E	0.25	ng/L
Molybdenum	Annually	EPA-200.8/6020	10	ug/L
Nickel	Quarterly	EPA-200.8/6020	1.2	ug/L
Selenium	Quarterly	EPA-200.8/6020	4.0	ug/L
Silver	Annually	EPA-200.8/6020	0.4	ug/L
Thallium	Annually	EPA-200.8/6020	1.2	ug/L
Vanadium	Annually	EPA-200.8/6020	1.2	ug/L
Zinc	Quarterly	EPA-200.8/6020	10	ug/L
Anions				
Alkalinity, Biocarbonate	Quarterly	310.1/SM 2320 B	2.0	mg/L
Alkalinity, Carbonate	Quarterly	310.1/SM 2320 B	2.0	mg/L
Chloride	Quarterly	325.2/4500-CLE	1.0	mg/L
Fluoride	Quarterly	SM 4500 F-C	0.10	mg/L
Nitrate	Quarterly	353.2/4500 N03F	0.05	mg/L
Nitrite	Quarterly	EPA-353.2 or 354.1/4500 NO2B	0.05	mg/L
Nitrogen, Ammonia	Quarterly	350.1/4500 NH36	0.50	mg/L
Sulfate	Quarterly	EPA-375.4/4038	1.0	mg/L
Sulfide	Quarterly	376.1/4500 S2-F	5.0	mg/L

Table 1
Kennecott Eagle Minerals Company
Humboldt Mill, Champion, Michigan
Storm Water Monitoring Plan
Analyte / Parameter List

Parameter	Frequency	Analytical Method	Method Reporting Limit	Units
Cations				
Calcium	Quarterly	EPA-200.7/6010B	0.50	mg/L
Potassium	Quarterly	EPA-200.7/6010B	0.50	mg/L
Magnesium	Quarterly	EPA-200.7/6010B	0.50	mg/L
Sodium	Quarterly	EPA-200.7/6010B	0.50	mg/L
General Chemistry				
Cyanide	Annually	EPA 335.4	0.02	mg/L
Hardness (Calculated) as CaCO3	Quarterly	EPA-6010/6020	0.002	mg/L
PAH's	Annually	8100	NA	mg/L
Total dissolved solids	Quarterly	EPA-160.1/SM 2540 C	50	mg/L
Total Suspended solids	Quarterly	EPA-160.1/SM 2540 D	1.0	mg/L
Total Organic Carbon	Annually	EPA	2.0	mg/L
Volatile Organic Compound (VOC)	Annually	8260	NA	ug/L

STORM WATER POLLUTION PREVENTION PLAN (SWPPP)

for

Humboldt Mill
4547 County Road 601
Champion, Michigan

Prepared for:

Kennecott Eagle Land, LLC
504 Spruce Street
Ishpeming, MI 49849

Prepared by:

Horizon Environmental Corporation
4771 – 50th Street, S.E., Suite One
Grand Rapids, Michigan 49512

August 2009

(Revised October 2010)

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1.0 GENERAL FACILITY INFORMATION

Name of Facility: Kennecott Eagle Land, LLC - Humboldt Mill

Facility Address: 4547 County Rd 601, Champion, Michigan 49814

Standard Industrial Classification (SIC) Code: 1021

Owner or Authorized Representative: Kennecott Eagle Land, LLC

FACILITY CONTACT

Name: Kristen Mariuzza

Title: Environmental & Permitting Manager

Telephone: (906) 486-1257

Mailing Address: Kennecott Eagle Minerals Company, 504 Spruce Street, Ishpeming, MI 49849

CERTIFIED STORM WATER OPERATORS

Ms. *Alicia Duex, Kennecott Eagle Minerals Company*
Industrial Storm Water Operator No. I-08949

Ms. Mary Morissette, Kennecott Eagle Minerals Company
Industrial Storm Water Operator No. I-10272

PERMIT INFORMATION

NPDES Permit Number: MI0058649

Effective Date of Coverage: Permit Issuance Date

Receiving Waters: Black River Watershed and the Middle Branch Escanaba River Watershed

STORM WATER POLLUTION PREVENTION PLAN CERTIFICATION

This Storm Water Pollution Prevention Plan (SWPPP) must be reviewed and signed by the Certified Storm Water Operator and by either the permittee or an authorized representative in accordance with 40 CFR 122.22. This SWPPP must be retained on-site at the facility which generates the storm water discharge. The SWPPP Certification for the Humboldt Mill site is provided in Appendix A.

BRIEF INDUSTRIAL ACTIVITY DESCRIPTION

The Humboldt Mill site was originally constructed in 1954 and was operated as a mining related industry. The site was acquired by Kennecott Eagle Land, LLC (KEL) in September of 2008 with future plans to use the mill for processing nickel and copper ore. In the short term, KEL performed preliminary site preparation activities, including removal and off-site disposal of mining residuals and wastes, improved site security, and general site improvements. This work was completed between September and November, 2008. The site is temporarily inactive, and this SWPPP has been prepared to cover the site during this inactive period. This SWPPP includes both non-structural and structural storm water controls, with a phased implementation of the structural controls. Initial structural controls (including straw-filled 9" tubular sedimentation and storm water control filtration devices and straw bale check dams) were put into place in 2009 and secondary structural controls (including the replacement of straw-filled 9" tubular sedimentation and storm water control filtration devices along the ditching immediately north of the former leach residue stockpile with silt fencing and additional straw bale check dams) have been put into place in 2010.

Future rehabilitative activities to prepare the site for the long-term future use as a mill will include the removal of certain equipment and pre-existing residual materials, demolition of structures and replacement of siding and roofing on the mill building. As part of this future work, historical mining residuals identified in this SWPPP will be removed from the site or otherwise remediated, and permanent storm water controls implemented. The SWPPP will be revised as needed to reflect future changes in site conditions.

2.0 STORM WATER POLLUTION PREVENTION TEAM

The storm water pollution prevention team is responsible for developing, implementing, maintaining, and revising the SWPPP. A storm water pollution prevention team has been established for the KEL – Humboldt Mill to implement the site's SWPPP. This team is familiar with the management and operation of the KEL – Humboldt Mill and the provisions of this SWPPP. The members of the team and their primary responsibilities include:

NAME & TITLE	RESPONSIBILITY
Ms. Alicia Duex	Implementing, maintaining, employee training, record keeping, submitting reports, conducting inspections, conducting the annual compliance evaluation
Ms. Mary Morissette	Conducting inspections and participating in annual compliance evaluation

3.0 SITE STORM WATER MAPS

A Site Location Map (Figure 1) and two Site Storm Water Maps (Figures 2 and 3) have been prepared for the KEL – Humboldt Mill site. Figures 2 and 3 represent the site in its current temporary inactive state and illustrate site buildings and structures, sources of potential storm water impact, drainage areas and flow directions. Figure 2 also illustrates initial structural storm water controls put in place in 2009, and Figure 3 also illustrates structural storm water controls which were put in place in 2010.

4.0 SIGNIFICANT MATERIALS

Initial activities to prepare the KEL - Humboldt Mill site for long-term future use involved the removal of numerous mill residues and wastes from site buildings and equipment. In its current inactive state, significant materials are not managed (e.g., handled, transferred, or stored) at the site. As a result of historic site operations, mill residues and waste were disposed or stockpiled on-site and these materials could degrade or impact storm water quality. Areas where *significant materials were disposed or stockpiled on-site include:*

1. Buried pyrite trench located just north of the main entrance road;
2. Former pyrite stockpile locate south of the mill building;
3. Former leach residue stockpile located south of the mill and former pellet plant; and
4. The pyrite above ground storage tank (AST).

A list of areas where significant materials were disposed or stockpiled on-site, including methods of exposure and receiving waters, is provided on Table 1.

4.1 *List of Significant Spills*

No releases of polluting materials have occurred at the KEL – Humboldt Mill site since KEL took ownership of the site in September of 2008. Rehabilitation activities performed at the site did not involve significant hazardous substance use, nor were hazardous substances brought onto the site. The only hazardous substances managed at the site were those removed from site buildings and equipment. All residuals and waste materials generated during rehabilitation activities were managed in accordance with the site's Due Care Plan and associated Residuals Management Plan. In the event of a future significant release of hazardous substances, the release will be documented on the form provided in Appendix B, and listed on Table 2, List of Significant Spills.

5.0 NON-STRUCTURAL CONTROLS

5.1 Preventative Maintenance Program (Monthly Inspection Program)

During non-winter months, *KEL will perform monthly storm water inspections and ongoing* maintenance of the site's storm water management and control devices. Because the site is currently inactive, there is no potential for site equipment or systems to breakdown or fail, resulting in discharges of pollutants to surface waters. And because there is no potential for

storm water runoff from the site during the winter months, inspections will only be performed when site runoff can occur. A monthly inspection log (including any necessary corrective actions) will be maintained on-file at the site and will be retained for three years.

A copy of the monthly storm water preventative maintenance and housekeeping (see Section 5.2) inspection form is provided in Appendix C.

Housekeeping Procedures

Although the KEL – Humboldt Mill site is currently inactive, KEL will practice good housekeeping procedures whenever company personnel or contractors are on-site. Housekeeping procedures are intended to reduce the potential for significant materials to come in contact with storm water. Examples of good housekeeping procedures to be employed at the site include:

- When brought on-site, construction materials, debris, trash, fuel or paint shall be managed with good housekeeping practices.
- When brought on-site, any materials that present a storm water exposure potential will be stored under shelter, tarps, or indoors to minimize precipitation runoff.

Good housekeeping procedures will be evaluated and inspected as part of the facility's monthly storm water inspection program (see Section 5.1).

5.2 Comprehensive Site Inspection (Semi-Annual Inspection Program)

KEL will perform a comprehensive site inspection by the Certified Storm Water Operator semi-annually. Documentation of the comprehensive site inspection results will be prepared and retained for three years. This documentation will include any identified incidents of non-compliance with the SWPPP or the site's storm water permit. If there are no identified incidents of non-compliance, the comprehensive site inspection documentation will contain a certification that the facility is in compliance with its storm water permit.

The comprehensive site inspection will include:

- A thorough inspection of the condition and location of the site's stormwater management and control structures;
- A review of the preventive maintenance and material handling practices, if applicable (see section 5.4);
- A review of good housekeeping practices, if applicable (see section 5.1); and
- All other paperwork associated with this SWPPP.

A copy of the semi-annual comprehensive site inspection form is provided in Appendix D.

5.4 Material Handling & Spill Prevention / Clean-Up Procedures

Although the Humboldt Mill is temporarily inactive, materials or equipment may be brought on-site as part of maintaining current site conditions. In the event that materials or equipment are brought on-site, material handling procedures and storage requirements for significant materials will be managed in the following manner:

- Any equipment brought on-site will be inspected and maintained to prevent fluid leakage due to corrosion or loose joints;
- Vehicle and equipment refueling will be performed off-site;
- Personnel shall be trained in spill prevention and control procedures;
- Use of appropriate equipment (e.g., shovels, adsorbents, PPE) to clean up spills. Residuals placed in appropriately labeled containers and properly disposed off-site;
- When applicable, equipment cleaning will be performed appropriately to prevent runoff from the effluent;
- Hazardous materials (if any) will be properly disposed; and
- Spills will be reported in accordance with state and federal regulations (see Section 4.1).

5.5 Employee Training Program

KEL employees involved with storm water management activities at the Humboldt Mill site receive training on the site's SWPPP on an annual basis. This training covers the following topics:

- Components and goals of the SWPPP;
- Good housekeeping practices;
- Spill prevention and response procedures;
- Waste minimization practices; and
- Informing visitors and contractors of facility policies, etc.

5.6 List of Storm Water Exposures

Following implementation of non-structural controls, the potential remains for significant materials to be exposed to storm water and result in storm water impact. At the Humboldt Mill site, historical mining residuals have the potential to result in storm water impact. A list of significant materials that will continue to be exposed to storm water after implementation of non-structural controls and that will be addressed through the use of both initial and secondary structural controls is provided in the following table.

SIGNIFICANT MATERIAL & LOCATION:	PLANNED CONTROL MEASURE:	IMPACTED OUTFALL:
Sediment and residual contaminants associated with the buried pyrite trench berm located just north of the main entrance road.	Initial controls (straw-filled 9" tubular sedimentation and storm water control filtration devices) installed along east, west and south ends of berm.	Black River Watershed
Sediment and residual contaminants associated with the former pyrite stockpile located south of the mill building.	Initial controls (straw-filled 9" tubular sedimentation and storm water control filtration devices) installed along south side of area.	Black River Watershed

SIGNIFICANT MATERIAL & LOCATION:	PLANNED CONTROL MEASURE:	IMPACTED OUTFALL:
Sediment and contaminants associated with the former leach residue stockpile located south of the mill plant and former pellet plant.	Initial controls (straw-filled 9" tubular sedimentation and storm water control filtration devices) installed along south side of area.	Black River Watershed
Sedimentation and contaminants associated with the pyrite aboveground storage tank (AST).	Initial controls (straw-bale check dams) installed along south drainage ditch and north of AST. Replaced with silt fencing in 2010.	Black River Watershed

6.0 STRUCTURAL CONTROLS

Storm water run-off from the areas of historical mining residue at the Humboldt Mill site is being managed primarily through the use of initial and secondary structural controls, including straw-filled 9" tubular sediment and storm water control filtration devices, straw bales as check dams, and silt fencing. A summary of these specific areas and primary and secondary structural control measure are described in the following table.

AREA OF CONCERN:	CONTROL MEASURE:
Storm water flow along north/south roadway between Main Mill Building and Former Pellet Plant	Initial controls (two rows of straw bale check dams) installed perpendicular to flow along the length of the upper portion of roadway. Secondary controls (silt fencing) installed perpendicular to flow on the upper portion of the road to act as a barrier.
The south side of the berm over the buried pyrite area.	Initial controls (straw-filled 9" tubular sediment and storm water control filtration devices) installed along the south side of berm to control run-off.
The collection ditch system that runs south of the Main Mill Building and the Office/Mill Dry Building.	Initial controls (straw bales as check dams) installed at regular intervals (every ~50 ft) within ditch perpendicular to flow to serve as check dams. Secondary controls (silt fencing) installed around the perimeter of the ditch.
AREA OF CONCERN:	CONTROL MEASURE:
The former pyrite stockpile located south of the Main Mill Building.	Initial controls (straw-filled 9" tubular sediment and storm water control filtration devices) installed along south side of area to control sedimentation run-off.
The former leach residue stockpile located	Initial controls (straw-filled 9" tubular sediment

south of the Main Mill Building and former pellet plant.	and storm water control filtration devices) installed along south side of area to control sedimentation run-off.

Installation of initial structural storm water controls was completed by November 18, 2009, and secondary structural storm water controls were installed during the summer of 2010. A list of the structural controls employed at the Humboldt Mill is provided on Table 3.

7.0 NON-STORM WATER DISCHARGES

The Humboldt Mill site is temporarily inactive and there is currently no water supply to the site. As such, there are no non-storm water discharges from the site.

8.0 ANNUAL REVIEW

KEL will perform an annual review and update of the SWPPP and maintain written documentation of this review on-site. Based on the annual review, KEL will amend the SWPPP as needed to ensure continued compliance with the terms and conditions of the Humboldt Mill's storm water permit. The annual review will be documented on the form provided in Appendix E.

9.0 CERTIFIED STORM WATER OPERATOR UPDATE

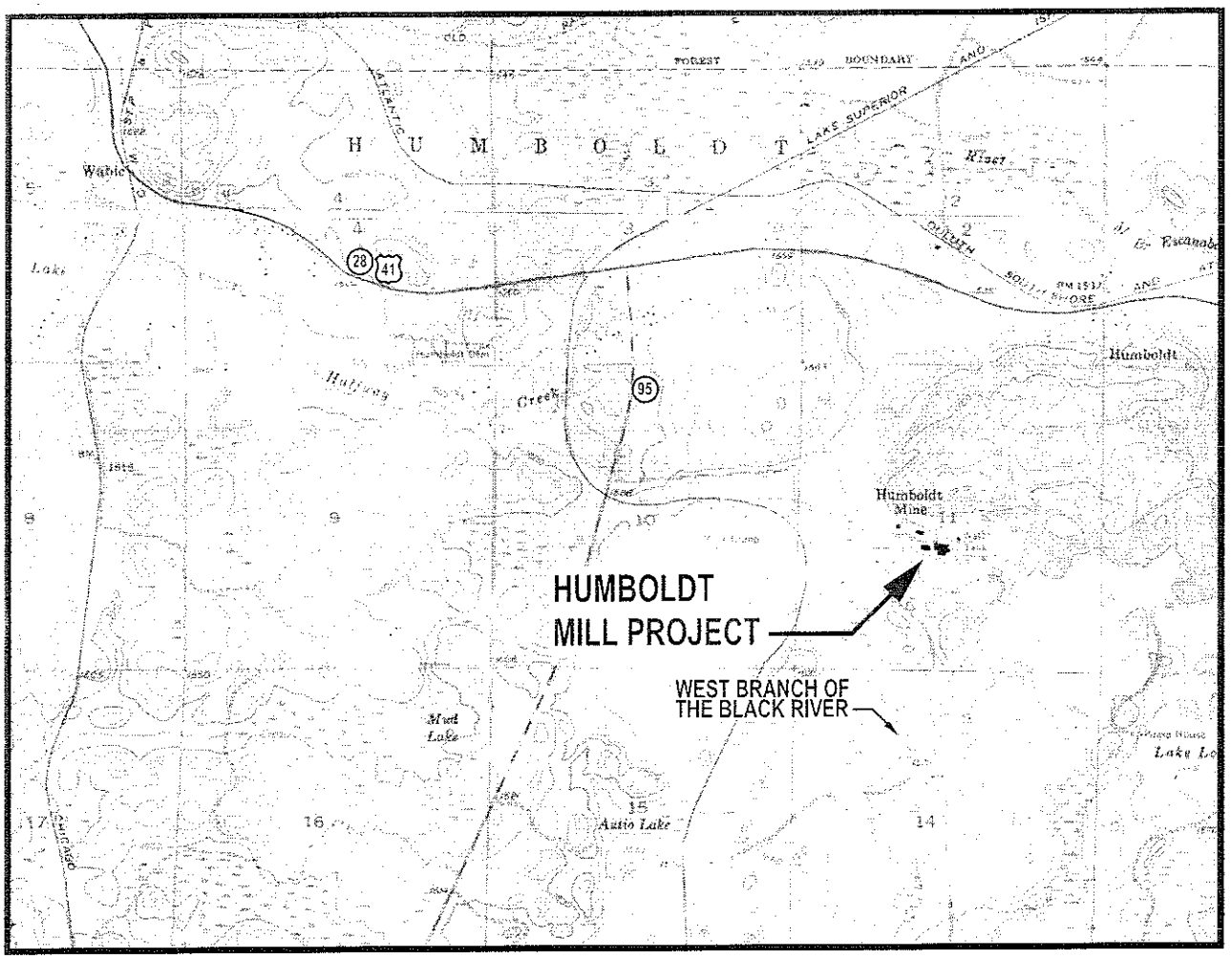
If the site's Certified Storm Water Operator(s) changes or an additional Certified Storm Water Operator is added, KEL will provide the name and certification number of the new Certified Storm Water Operator(s) to the MDEQ.

10.0 RECORD KEEPING REQUIREMENTS

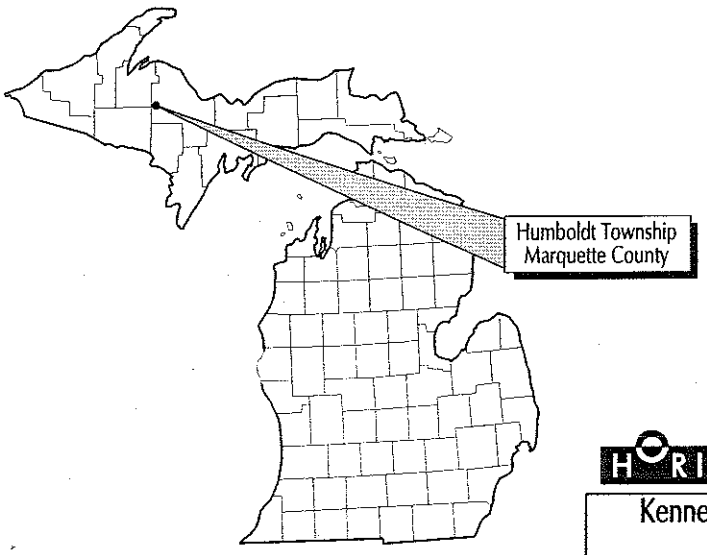
As previously discussed, KEL will maintain records of all required SWPPP-related inspection, training and maintenance activities. KEL will also keep records describing incidents such as spills or other discharges that can affect the quality of storm water runoff. All required records will be retained on site for three years.

FIGURES

kex0000sm01



TAKEN FROM 7.5 MINUTE SERIES TOPOGRAPHIC MAP
REPUBLIC AND CHAMPION QUADRANGLES
SCALE: 1" = 3000'



North

0 1500 3000 6000

SCALE IN FEET

HORIZON ENVIRONMENTAL

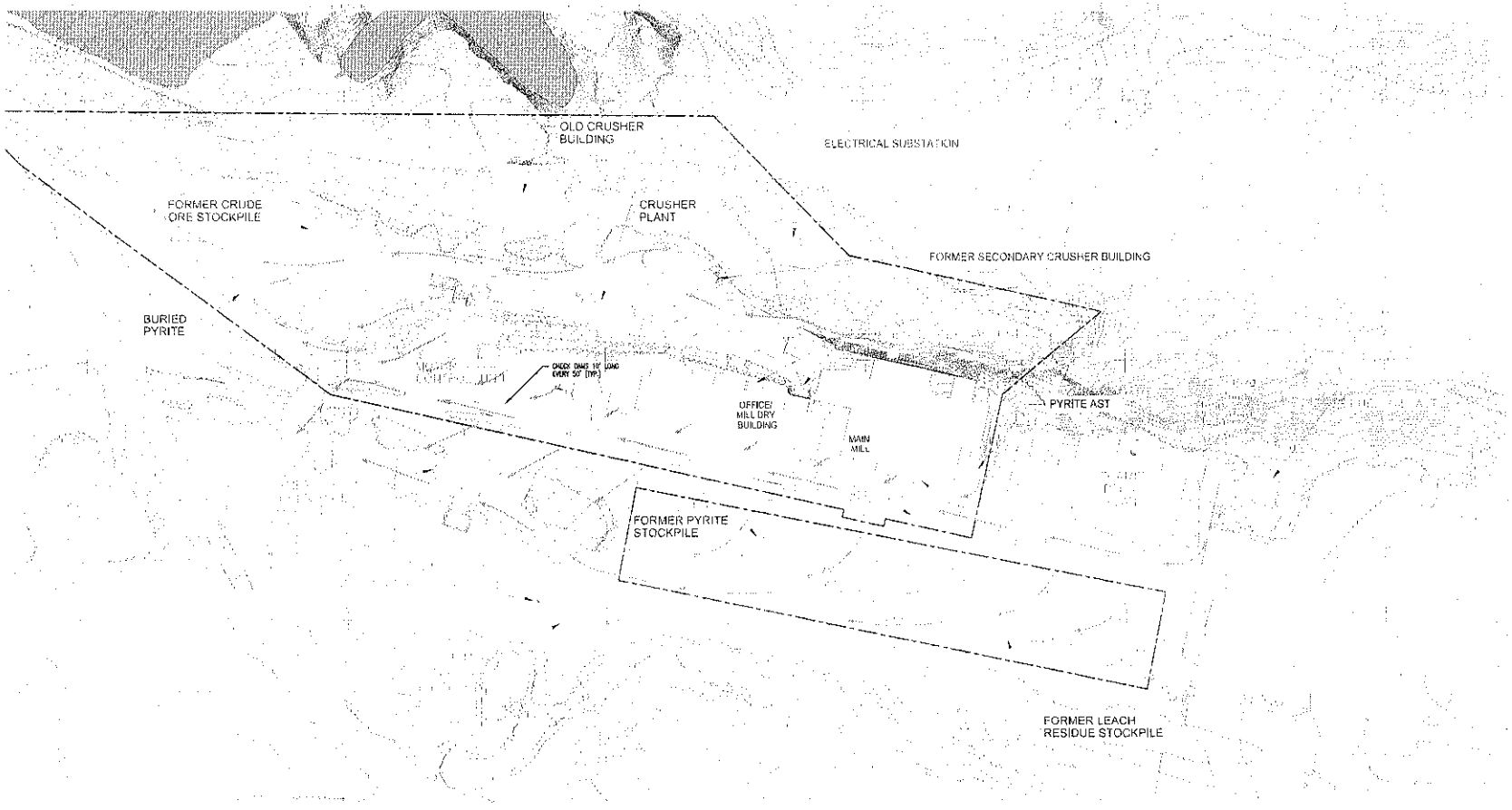
Kennecott Eagle Land, LLC - Humboldt Mill
Marquette County, Michigan

SITE LOCATION MAP

PROJECT NUMBER:
KEX-0101

FIGURE:
1

NOVEMBER 2009



HORIZON ENVIRONMENTAL

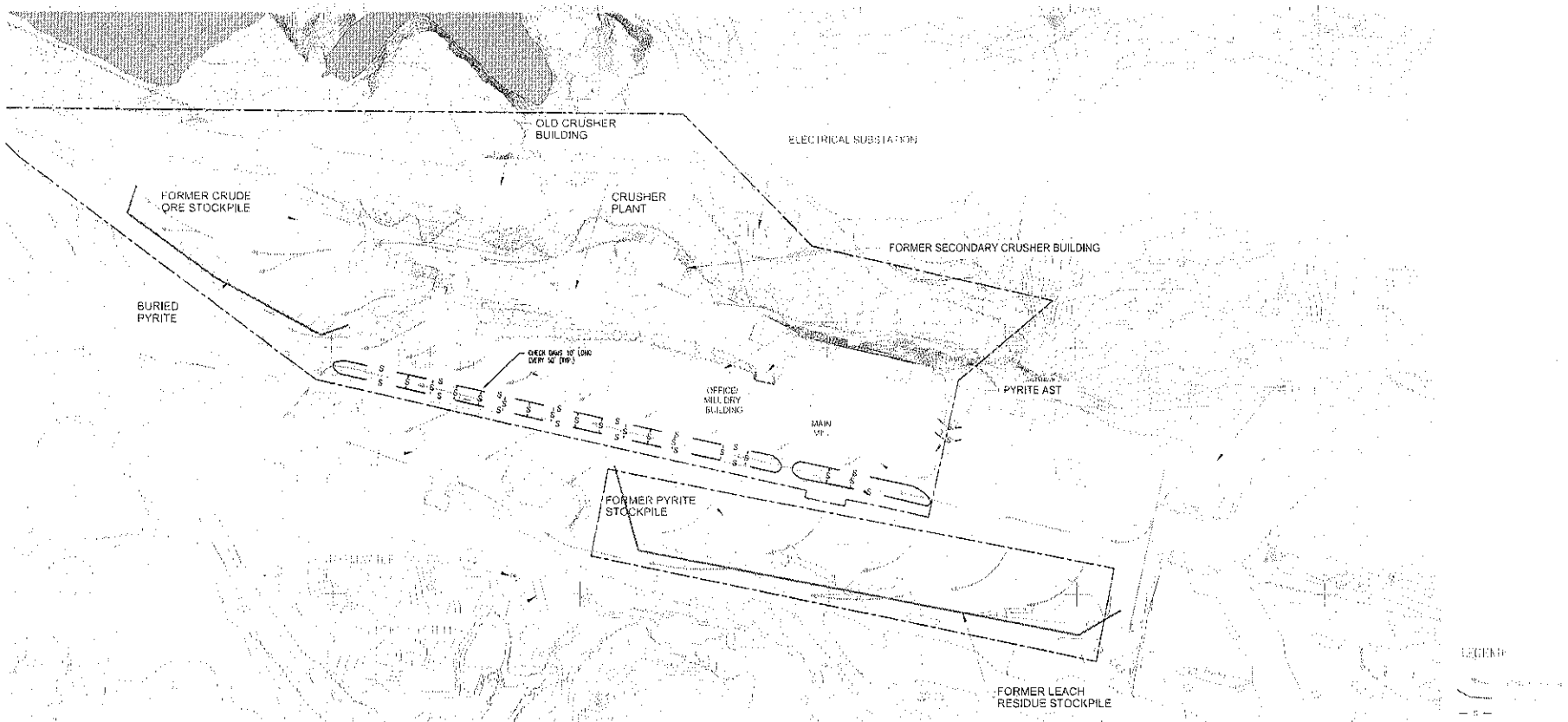
KENNECOTT EAGLE LAND, LLC – HUMBOLDT MILL PROJECT
HUMBOLDT TOWNSHIP, MARQUETTE COUNTY, MICHIGAN

SITE STORM WATER MAP – INITIAL STRUCTURAL CONTROLS

PROJECT NUMBER: KEX-0101

SCALE: 1" = 100'

FIGURE: 2



HORIZON ENVIRONMENTAL

KENNECOTT EAGLE LAND, LLC – HUMBOLDT MILL PROJECT
HUMBOLDT TOWNSHIP, MARQUETTE COUNTY, MICHIGAN

SITE STORM WATER MAP – SECONDARY STRUCTURAL CONTROLS

PROJECT NUMBER: KEX-0101

SCALE: 1" = 100'

FIGURE: 3

TABLES

TABLE 1
SIGNIFICANT MATERIAL INVENTORY AND DESCRIPTION OF INDUSTRIAL ACTIVITY OR SIGNIFICANT MATERIAL STORAGE AREAS

Industrial Activity or Significant Material Storage Areas	Significant Materials	Exposure Method	Inlet	Outfall
Buried pyrite trench located just north of the main entrance road	Pyrite	Precipitation	Precipitation	Black River Watershed
Former pyrite stockpile located south of the Main Mill Building	Pyrite	Precipitation	Precipitation	Black River Watershed
Former leach residue stockpile located south of Main Mill Building	Pyrite	Precipitation	Precipitation	Black River Watershed
The pyrite above ground storage tank (AST)	Pyrite	Precipitation	Precipitation	Black River Watershed

TABLE 2
LIST OF SIGNIFICANT SPILLS

Location & Date	Material & Volume	Corrective Actions Taken

TABLE 3
STRUCTURAL CONTROLS EMPLOYED AT HUMBOLDT MILL

Description of Structural Control	Location of Structural Control	Significant Materials intended to be managed
Initial Controls		
Straw bales as check-dams and straw-filled 9" tubular sediment and storm water control filtration devices	As illustrated on Figure 2, Site Storm Water Map	
Secondary Controls		
Silt fencing installed perpendicular to the road on the upper portion of the road to act as a barrier.	The top of the north/south roadway just east of the Main Mill Building.	Erosion and sedimentation control for precipitation running down the road.
Silt fencing is installed around the perimeter of the ditch. In addition straw bales are installed at regular intervals within the ditch perpendicular to water flow to serve as check dams.	The collection ditch system that runs south of the Main Mill Building and the Office/Mill Dry Building.	Erosion and sedimentation control for precipitation running into the ditch from the north.

APPENDICES

APPENDIX A - SWPPP CERTIFICATION

The permit requires that the SWPPP shall be reviewed and signed by the Certified Storm Water Operator(s) and by either the permittee or an authorized representative in accordance with 40 CFR 122.22. The SWPPP shall be retained on-site at the facility which generates the storm water discharge.

I certify under penalty of law that the storm water drainage system in this SWPPP has been tested or evaluated for the presence of non-storm water discharges either by me, or under my direction and supervision. I certify under penalty of law that this SWPPP has been developed in accordance with the General Permit and with good engineering practices. To the best of my knowledge and belief, the information submitted is true, accurate, and complete. At the time this plan was completed no unauthorized discharges were present. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment for knowing violations.

Permittee or Authorized Representative
Printed Name & Title:
Signature & Date:

Certified Storm Water Operator
Printed Name & Certification Number:
Signature & Date:

APPENDIX B - MDEQ Spill or Release Report Form

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

SPILL OR RELEASE REPORT

NOTE: Some regulations require a specific form to use and procedures to follow when reporting a release. Those forms and procedures MUST be used and followed if reporting under those regulations. This report form is to aid persons reporting releases under regulations that do not require a specific form. This report form is not required to be used. To report a release, some regulations require a facility to call the PEAS Hotline at 800-292-4706, or DEQ District Office that oversees the county where it occurred, and other regulating agencies and provide the following information. A follow-up written report may be required. Keep a copy of this report as documentation that the release was reported. If you prefer to submit this report electronically by FAX or e-mail, contact the regulating agency for the correct telephone number or e-mail address. See the DEQ website on Spill/Release Reporting for more reporting information.

Please print or type all information.

NAME AND TITLE OF PERSON SUBMITTING WRITTEN REPORT | TELEPHONE NUMBER (provide area code)

NAME OF BUSINESS

STREET ADDRESS

CITY | STATE | ZIP CODE

BUSINESS TELEPHONE NUMBER (provide area code)

RELEASE LOCATION (provide address if different than business, if known, and give directions to the spill location. Include nearest highway, town, road intersection, etc.)

SITE IDENTIFICATION NUMBER AND OTHER IDENTIFYING NUMBERS (if applicable) | COUNTY | TOWN/SHIP | TIER/RANGE/SECTION (if known)

RELEASE DATA. Complete all applicable categories. Check all the boxes that apply to the release. Provide the best available information regarding the release and its impacts. Attach additional pages if necessary.

DATE & TIME OF RELEASE (if known)
____/____/____
_____am/pm

DATE & TIME OF DISCOVERY
____/____/____
_____am/pm

DURATION OF RELEASE (if known)
_____ days
_____ hours
_____ minutes

TYPE OF INCIDENT
- ☐ Explosion
- ☐ Fire
- ☐ Leaking container
- ☐ Loading/unloading release
- ☐ Pipe/valve leak or rupture
- ☐ Vehicle accident
- ☐ Other _____

MATERIAL RELEASED (Chemical or trade name) ☐ CHECK HERE IF ADDITIONAL MATERIALS LISTED ON ATTACHED PAGE.	CAS NUMBER or HAZARDOUS WASTE CODE	ESTIMATED QUANTITY RELEASED (indicate unit e.g. lbs, gals, cu ft or yds)	PHYSICAL STATE RELEASED (indicate if solid, liquid, or gas)

FACTORS CONTRIBUTING TO RELEASE
- ☐ Equipment failure
- ☐ Operator error
- ☐ Faulty process design
- ☐ Training deficiencies
- ☐ Unusual weather conditions
- ☐ Other _____

SOURCE OF LOSS
- ☐ Container
- ☐ Railroad car
- ☐ Pipeline
- ☐ Ship
- ☐ Tank
- ☐ Tanker
- ☐ Truck
- ☐ Other _____

TYPE OF MATERIAL RELEASED
- ☐ Agricultural manure, pesticide, fertilizer
- ☐ Chemicals
- ☐ Flammable or combustible liquid
- ☐ Hazardous waste
- ☐ Liquid industrial waste
- ☐ Oil/petroleum products or waste
- ☐ Salt
- ☐ Sewage
- ☐ Other _____
- ☐ Unknown

MATERIAL LISTED ON or DEFINED BY
- ☐ CAA Section 112(r) list (40 CFR Part 68)
- ☐ CERCLA Table 302.4 (40 CFR Part 302)
- ☐ EPCRA Extremely Hazardous Substance (40 CFR Part 355)
- ☐ Michigan Critical Materials Register or permit
- ☐ NREPA Part 31, Part 5 Rules polluting material
- ☐ NREPA Part 111 or RCRA hazardous waste
- ☐ NREPA Part 121 liquid industrial waste
- ☐ Other list _____
- ☐ Unknown

IMMEDIATE ACTIONS TAKEN
- ☐ Containment
- ☐ Dilution
- ☐ Evacuation
- ☐ Hazard removal
- ☐ Neutralization
- ☐ System shut down
- ☐ Diversion of release to treatment
- ☐ Decontamination of persons or equipment
- ☐ Monitoring
- ☐ Other _____

RELEASE REACHED

Distance from spill location to surface water, in feet _____

- ☐ Surface waters (include name of river, lake, drain involved) _____
- ☐ Drain connected to sanitary sewer (include name of wastewater treatment plant and/or street drain, if known) _____
- ☐ Drain connected to storm sewer (include name of drain or water body it discharges into, if known) _____
- ☐ Groundwater (indicate if it is a known or suspected drinking water source and include name of aquifer, if known) _____
- ☐ Soils (include type e.g. clay, sand, loam, etc.) _____
- ☐ Ambient Air
- ☐ Spill contained on impervious surface

EXTENT OF INJURIES, IF ANY

WAS ANYONE HOSPITALIZED?
☐ Yes (number) HOSPITALIZED
☐ No

TOTAL NUMBER OF INJURIES TREATED ON-SITE:

DESCRIBE THE INCIDENT, THE TYPE OF EQUIPMENT INVOLVED IN THE RELEASE, HOW THE VOLUME OF LOSS WAS DETERMINED, ALONG WITH ANY RESULTING ENVIRONMENTAL DAMAGE CAUSED BY THE RELEASE. IDENTIFY WHO IMMEDIATELY RESPONDED TO THE INCIDENT (own employees or contractor — include cleanup company name, contact person, and telephone number). ALSO IDENTIFY WHO DID FURTHER CLEANUP ACTIVITIES IF PERFORMED OF KNOWN WHEN REPORT SUBMITTED

☐ CHECK HERE IF DESCRIPTION OR ADDITIONAL COMMENTS ARE INCLUDED ON ATTACHED PAGE

ESTIMATED QUANTITY OF ANY RECOVERED MATERIALS AND A DESCRIPTION OF HOW THOSE MATERIALS WERE MANAGED (include disposal method if applicable)

☐ CHECK HERE IF DESCRIPTION OR ADDITIONAL COMMENTS ARE INCLUDED ON ATTACHED PAGE

ASSESSMENT OF ACTUAL OR POTENTIAL HAZARDS TO HUMAN HEALTH (include known acute or immediate and chronic or delayed effects, and where appropriate, advice regarding medical attention necessary for exposed individuals.)

☐ CHECK HERE IF DESCRIPTION OR ADDITIONAL COMMENTS ARE INCLUDED ON ATTACHED PAGE

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY NOTIFIED

INITIAL CONTACT BY: ☐ Telephone ☐ Fax ☐ Email ☐ Other

DATE/TIME INITIAL CONTACT:

☐ PEAS, 800-292-4706 Log Number Assigned

☐ DEQ District or Field Office

- ☐ Baraga
- ☐ Bay City
- ☐ Cadillac
- ☐ Crystal Falls
- ☐ Detroit
- ☐ Gaylord
- ☐ Grand Rapids
- ☐ Gwinn
- ☐ Jackson
- ☐ Kalamazoo
- ☐ Lansing
- ☐ Newberry
- ☐ Warren
- ☐ Wyoming

DEQ Office locations are subject to change.

Divisions or Offices Contacted

- ☐ Air Quality
- ☐ Land & Water Management
- ☐ Office Geological Survey
- ☐ Remediation and Redevelopment
- ☐ Waste and Hazardous Materials
- ☐ Water Bureau

NAME AND TITLE OF PERSON MAKING INITIAL REPORT:

DEQ STAFF CONTACTED & PHONE NUMBER:

OTHER ENTITIES NOTIFIED

	Date:	Time:
☐ National Response Center (NRC) 800-424-8802		
☐ US Coast Guard Office		
☐ Detroit ☐ Grand Haven ☐ Sault Ste. Marie		
☐ US Department of Transportation		
☐ US Environmental Protection Agency		
☐ 911 (or primary public safety answering point)		
☐ Local Fire Department		
☐ Local Police and/or State Police		
☐ Local Emergency Planning Committee		
☐ State Emergency Response Commission via MI SARA Title III Program		
☐ Wastewater Treatment Plant Authority		
☐ Hazmat Team		
☐ Local Health Department		
☐ Department of Labor & Economic Growth MIOSHA		
☐ Department of Labor & Economic Growth Fire Safety		
☐ Michigan Department of Agriculture 800-405-0101		
☐ Other		

PERSON CONTACTED & PHONE NUMBER:

DATE WRITTEN REPORT SUBMITTED

SIGNATURE OF PERSON SUBMITTING WRITTEN REPORT

APPENDIX C – MONTHLY PREVENTATIVE MAINTENANCE/HOUSEKEEPING INSPECTION FORM

Date:	Time:

Inspector	
Print:	Signature:

Areas Inspected	Observation	Corrective Actions Taken

APPENDIX D – SEMI-ANNUAL COMPREHENSIVE SITE INSPECTION FORM

Date:	Time:

Inspector	
Print:	Signature:

Is the Facility in compliance with the General Storm Water Permit and the SWPPP:

Areas Inspected	Observation	Corrective Actions Taken

APPENDIX E - Annual SWPPP Review Form

Date of Review:

Reviewer	
Print:	Signature:

Annual SWPPP Review Checklist

1) Facility general information and SWPPP team information is current and accurate	Yes	No	
2) Site map is current and accurate	Yes	No	
3) Significant material inventory is current and accurate	Yes	No	
4) New exposures, processes and related controls have been documented	Yes	No	NA
5) Spills have been recorded and reported as appropriate	Yes	No	NA
6) Records of routine preventative maintenance, housekeeping and employee training are available in the SWPPP file	Yes	No	
7) Comprehensive site inspections have been completed, certified and filed in the SWPPP file	Yes	No	
8) Corrective actions noted in the inspection reports have been completed	Yes	No	
9) Certified Storm Water Operator is current	Yes	No	
10) Annual fees have been paid	Yes	No	
11) Permit renewal request has been processed	Yes	No	NA
12) SWPPP has been reviewed and signed by the Certified Storm Water Operator and the Permittee or designated representative	Yes	No	

Additional Comments: